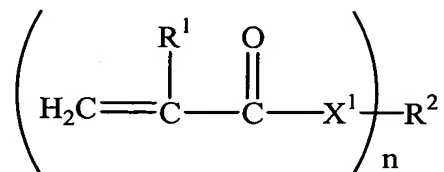


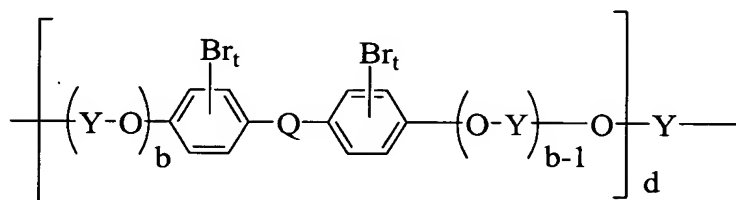
## CLAIMS:

1. A curable composition, comprising:

a multifunctional (meth)acrylate represented by the formula:

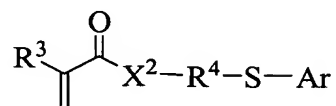


wherein  $\text{R}^1$  is hydrogen or methyl;  $\text{X}^1$  is O or S;  $n$  is at least 2; and  $\text{R}^2$  is represented by the formula:



wherein Q is  $-\text{C}(\text{CH}_3)_2-$ ,  $-\text{CH}_2-$ ,  $-\text{C}(\text{O})-$ ,  $-\text{S}(\text{O})-$ , or  $-\text{S}(\text{O})_2-$ ; Y is divalent  $\text{C}_1$ - $\text{C}_6$  alkyl or hydroxy substituted divalent  $\text{C}_1$ - $\text{C}_6$  alkyl;  $b$  is independently at each occurrence 1 to 10;  $t$  is independently at each occurrence 0, 1, 2, 3, or 4; and  $d$  is 1 to 3;

a substituted or unsubstituted aryether (meth)acrylate monomer according to the formula:



wherein  $\text{R}^3$  is hydrogen or methyl;  $\text{X}^2$  is O or S;  $\text{R}^4$  is substituted or unsubstituted divalent  $\text{C}_1$ - $\text{C}_6$  alkyl or alkenyl; Ar is substituted or unsubstituted  $\text{C}_6$ - $\text{C}_{12}$  aryl, including phenyl; wherein the substitution on the  $\text{R}^4$  and Ar independently include fluorine, chlorine, bromine, iodine,  $\text{C}_1$ - $\text{C}_6$  alkyl,  $\text{C}_1$ - $\text{C}_3$  perhalogenated alkyl, hydroxy,

C<sub>1</sub>-C<sub>6</sub> ketone, C<sub>1</sub>-C<sub>6</sub> ester, N,N-(C<sub>1</sub>-C<sub>3</sub>) alkyl substituted amide, or a combination comprising at least one of the forgoing substituents; and

a polymerization initiator.

2. The composition of claim 1, comprising:

about 25 to about 75 weight percent multifunctional (meth)acrylate;

about 15 to about 70 weight percent substituted or unsubstituted aryether (meth)acrylate monomer; and

about 0.1 to about 10 weight percent polymerization initiator based on the total weight of the composition.

3. The composition of claim 1, comprising:

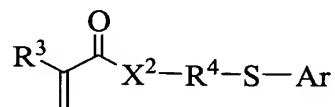
about 50 to about 70 weight percent multifunctional (meth)acrylate;

about 30 to about 50 weight percent substituted or unsubstituted aryether (meth)acrylate monomer; and

about 0.1 to about 10 weight percent polymerization initiator based on the total weight of the composition.

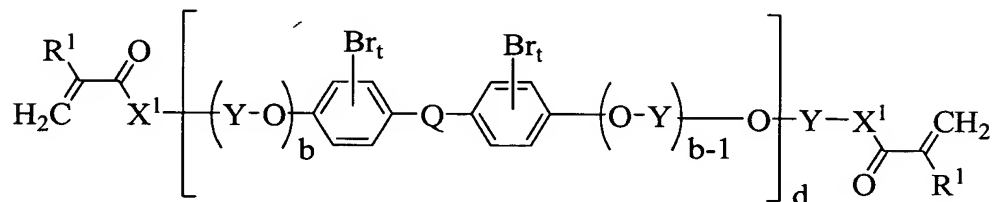
4. The composition of claim 1, wherein the multifunctional (meth)acrylate is the reaction product of (meth)acrylic acid with a di-epoxide comprising bisphenol-A diglycidyl ether; bisphenol-F diglycidyl ether; tetrabromo bisphenol-A diglycidyl ether; tetrabromo bisphenol-F diglycidyl ether; 1,3-bis-{4-[1-methyl-1-(4-oxiranylmethoxy-phenyl)-ethyl]-phenoxy}-propan-2-ol; 1,3-bis-{2,6-dibromo-4-[1-(3,5-dibromo-4-oxiranylmethoxy-phenyl)-1-methyl-ethyl]-phenoxy}-propan-2-ol; or a combination comprising at least one of the foregoing di-epoxides; and

wherein the substituted or unsubstituted aryether (meth)acrylate monomer according to the formula:



wherein  $\text{R}^3$  is hydrogen or methyl;  $\text{X}^2$  is O or S;  $\text{R}^4$  is divalent  $\text{C}_1\text{-C}_6$  alkyl; and Ar is phenyl.

5. The composition of claim 1, wherein the multifunctional (meth)acrylate is



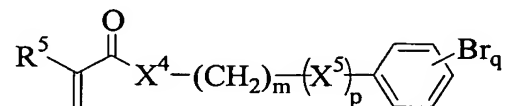
wherein Q is  $-\text{C}(\text{CH}_3)_2-$ ,  $-\text{CH}_2-$ ,  $-\text{C}(\text{O})-$ ,  $-\text{S}(\text{O})-$ , or  $-\text{S}(\text{O})_2-$ ; Y is divalent  $\text{C}_1\text{-C}_6$  alkyl or hydroxy substituted divalent  $\text{C}_1\text{-C}_6$  alkyl; b is 1; t is 2; and d is 1; or

wherein Q is  $-\text{C}(\text{CH}_3)_2-$ ,  $-\text{CH}_2-$ ,  $-\text{C}(\text{O})-$ ,  $-\text{S}(\text{O})-$ , or  $-\text{S}(\text{O})_2-$ ; Y is divalent  $\text{C}_1\text{-C}_6$  alkyl or hydroxy substituted divalent  $\text{C}_1\text{-C}_6$  alkyl; b is 1; t is 2; and d is 2; or

a combination thereof.

6. The composition of claim 1, wherein the substituted or unsubstituted aryether (meth)acrylate monomer is phenylthioethyl acrylate or phenylthioethyl methacrylate.

7. The composition of claim 1, further comprising a brominated aromatic (meth)acrylate monomer according to the formula:



wherein  $\text{R}^5$  is hydrogen or methyl;  $\text{X}^4$  is O or S;  $\text{X}^5$  is O or S;  $m$  is 1, 2, or 3;  $p$  is 0 or 1; and  $q$  is 1, 2, 3, 4, or 5.

8. The composition of claim 7, wherein the brominated aromatic (meth)acrylate monomer is tribromobenzyl (meth)acrylate, tribromophenyl (meth)acrylate, pentabromobenzyl (meth)acrylate, pentabromophenyl (meth)acrylate or a combination comprising at least one of the foregoing brominated aromatic (meth)acrylate monomers.

9. The composition of claim 7, wherein the brominated aromatic (meth)acrylate monomer is present at about 1 to about 20 weight percent based on the total weight of the composition.

10. The composition of claim 1, wherein the polymerization initiator is a phosphine oxide photoinitiator.

11. The composition of claim 1, further comprising a flame retardant, antioxidant, thermal stabilizer, ultraviolet stabilizer, dye, colorant, anti-static agent, surfactant, or a combination comprising at least one of the foregoing additives.

12. The composition of claim 1, wherein the refractive index of the composition is greater than or equal to about 1.58.

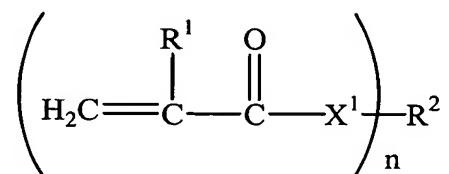
13. An optical film comprising a reaction product of the composition of claim 1.

14. The optical film of claim 13, comprising a degree of cure of greater than about 80 percent after exposure to a UVA dose of about 0.289 joules/cm<sup>2</sup>.

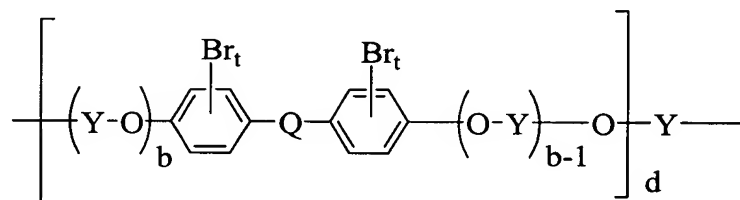
15. An optical film for backlit displays comprising a reaction product of the composition of claim 1.

16. A curable composition, consisting essentially of:

a multifunctional (meth)acrylate represented by the formula:

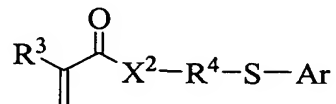


wherein R<sup>1</sup> is hydrogen or methyl; X<sup>1</sup> is O or S; n is at least 2; and R<sup>2</sup> is represented by the formula:



wherein Q is -C(CH<sub>3</sub>)<sub>2</sub>-, -CH<sub>2</sub>-, -C(O)-, -S(O)-, or -S(O)<sub>2</sub>-; Y is divalent C<sub>1</sub>-C<sub>6</sub> alkyl or hydroxy substituted divalent C<sub>1</sub>-C<sub>6</sub> alkyl; b is independently at each occurrence 1 to 10; t is independently at each occurrence 0, 1, 2, 3, or 4; and d is 1 to 3;

a substituted or unsubstituted aryether (meth)acrylate monomer according to the formula:



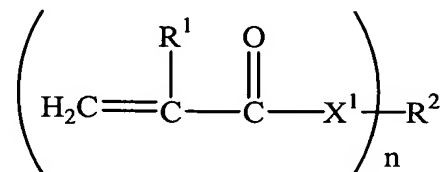
wherein R<sup>3</sup> is hydrogen or methyl; X<sup>2</sup> is O or S; R<sup>4</sup> is substituted or unsubstituted divalent C<sub>1</sub>-C<sub>6</sub> alkyl or alkenyl; Ar is substituted or unsubstituted C<sub>6</sub>-C<sub>12</sub> aryl,

including phenyl; wherein the substitution on the R<sup>4</sup> and Ar independently include fluorine, chlorine, bromine, iodine, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>3</sub> perhalogenated alkyl, hydroxy, C<sub>1</sub>-C<sub>6</sub> ketone, C<sub>1</sub>-C<sub>6</sub> ester, N,N-(C<sub>1</sub>-C<sub>3</sub>) alkyl substituted amide, or a combination comprising at least one of the forgoing substituents; and

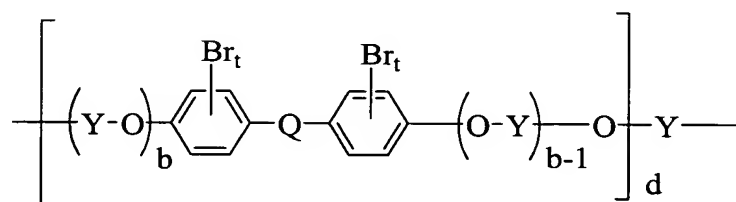
a polymerization initiator.

17. The curable composition of claim 16, consisting of

a multifunctional (meth)acrylate represented by the formula:

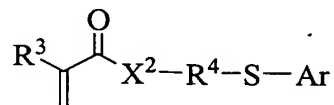


wherein  $\text{R}^1$  is hydrogen or methyl;  $\text{X}^1$  is O or S;  $n$  is at least 2; and  $\text{R}^2$  is represented by the formula:



wherein  $\text{Q}$  is  $-\text{C}(\text{CH}_3)_2-$ ,  $-\text{CH}_2-$ ,  $-\text{C}(\text{O})-$ ,  $-\text{S}(\text{O})-$ , or  $-\text{S}(\text{O})_2-$ ;  $\text{Y}$  is divalent  $\text{C}_1$ - $\text{C}_6$  alkyl or hydroxy substituted divalent  $\text{C}_1$ - $\text{C}_6$  alkyl;  $b$  is independently at each occurrence 1 to 10;  $t$  is independently at each occurrence 0, 1, 2, 3, or 4; and  $d$  is 1 to 3;

a substituted or unsubstituted aryether (meth)acrylate monomer according to the formula:



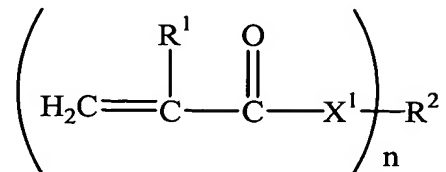
wherein  $\text{R}^3$  is hydrogen or methyl;  $\text{X}^2$  is O or S;  $\text{R}^4$  is substituted or unsubstituted divalent  $\text{C}_1$ - $\text{C}_6$  alkyl or alkenyl;  $\text{Ar}$  is substituted or unsubstituted  $\text{C}_6$ - $\text{C}_{12}$  aryl, including phenyl; wherein the substitution on the  $\text{R}^4$  and  $\text{Ar}$  independently include fluorine, chlorine, bromine, iodine,  $\text{C}_1$ - $\text{C}_6$  alkyl,  $\text{C}_1$ - $\text{C}_3$  perhalogenated alkyl, hydroxy,  $\text{C}_1$ - $\text{C}_6$  ketone,  $\text{C}_1$ - $\text{C}_6$  ester,  $\text{N,N}$ -( $\text{C}_1$ - $\text{C}_3$ ) alkyl substituted amide, or a combination comprising at least one of the forgoing substituents; and

a polymerization initiator.

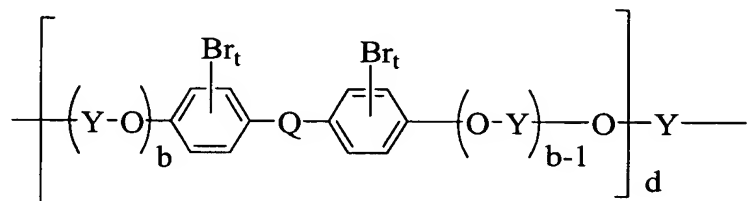


18. A curable composition, comprising:

a multifunctional (meth)acrylate represented by the formula:

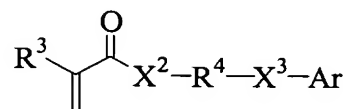


wherein  $\text{R}^1$  is hydrogen or methyl;  $\text{X}^1$  is O or S;  $n$  is at least 2; and  $\text{R}^2$  is represented by the formula:



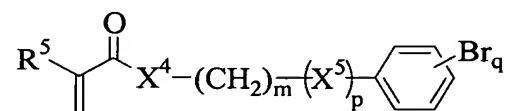
wherein  $\text{Q}$  is  $-\text{C}(\text{CH}_3)_2-$ ,  $-\text{CH}_2-$ ,  $-\text{C}(\text{O})-$ ,  $-\text{S}(\text{O})-$ , or  $-\text{S}(\text{O})_2-$ ;  $\text{Y}$  is divalent  $\text{C}_1$ - $\text{C}_6$  alkyl or hydroxy substituted divalent  $\text{C}_1$ - $\text{C}_6$  alkyl;  $b$  is independently at each occurrence 1 to 10;  $t$  is independently at each occurrence 0, 1, 2, 3, or 4; and  $d$  is 1 to 3;

a substituted or unsubstituted aryether (meth)acrylate monomer represented by the formula:



wherein  $\text{R}^3$  is hydrogen or methyl;  $\text{X}^2$  is O or S;  $\text{X}^3$  is O or S;  $\text{R}^4$  is substituted or unsubstituted divalent  $\text{C}_1$ - $\text{C}_6$  alkyl or alkenyl;  $\text{Ar}$  is substituted or unsubstituted  $\text{C}_6$ - $\text{C}_{12}$  aryl, including phenyl; wherein the substitution on the  $\text{R}^4$  and  $\text{Ar}$  independently include fluorine, chlorine, bromine, iodine,  $\text{C}_1$ - $\text{C}_6$  alkyl,  $\text{C}_1$ - $\text{C}_3$  perhalogenated alkyl, hydroxy,  $\text{C}_1$ - $\text{C}_6$  ketone,  $\text{C}_1$ - $\text{C}_6$  ester,  $\text{N,N}$ -( $\text{C}_1$ - $\text{C}_3$ ) alkyl substituted amide, or a combination comprising at least one of the foregoing substituents;

a brominated aromatic (meth)acrylate monomer represented by the formula:



wherein  $\text{R}^5$  is hydrogen or methyl;  $\text{X}^4$  is O or S;  $\text{X}^5$  is O or S;  $m$  is 1, 2, or 3;  $p$  is 0 or 1; and  $q$  is 4 or 5; and

a polymerization initiator.

19. The composition of claim 18, wherein the multifunctional (meth)acrylate is the reaction product of (meth)acrylic acid with a di-epoxide comprising bisphenol-A diglycidyl ether; bisphenol-F diglycidyl ether; tetrabromo bisphenol-A diglycidyl ether; tetrabromo bisphenol-F diglycidyl ether; 1,3-bis-{4-[1-methyl-1-(4-oxiranylmethoxy-phenyl)-ethyl]-phenoxy}-propan-2-ol; 1,3-bis-{2,6-dibromo-4-[1-(3,5-dibromo-4-oxiranylmethoxy-phenyl)-1-methyl-ethyl]-phenoxy}-propan-2-ol; or a combination comprising at least one of the foregoing di-epoxides.

20. The composition of claim 18, wherein the substituted or unsubstituted arylether (meth)acrylate monomer is phenoxyethyl (meth)acrylate, phenylthioethyl (meth)acrylate, or a combination comprising at least one of the foregoing substituted or unsubstituted arylether (meth)acrylate monomers.

21. The composition of claim 18, wherein the brominated aromatic (meth)acrylate monomer is pentabromobenzyl (meth)acrylate, pentabromophenyl (meth)acrylate, or a combination comprising at least one of the foregoing brominated aromatic (meth)acrylate monomers.

22. The composition of claim 18, comprising

about 25 to about 75 weight percent of the multifunctional (meth)acrylate;

about 15 to about 70 weight percent of the substituted or unsubstituted arylether (meth)acrylate monomer;

about 1 to about 20 weight percent of the brominated aromatic (meth)acrylate monomer; and

about 0.1 to about 5 weight percent of a phosphine oxide photoinitiator based on the total weight of the composition.

23. An optical film comprising a reaction product of the composition of claim 18.

24. A method of making the composition of claim 1, comprising:

blending the multifunctional (meth)acrylate, the substituted or unsubstituted arylether (meth)acrylate monomer, and the polymerization initiator.